CLAIMS

1. A hydrogen supply system, the system comprising a first hydrogen storage material (1) and a second hydrogen storage material (2), wherein the two hydrogen stores are separate; and wherein the first hydrogen storage material can be activated to release hydrogen at a lower temperature than can the second hydrogen storage material; wherein at least a proportion of the hydrogen released from the first hydrogen storage material is utilised to activate the second hydrogen storage material; and wherein at least a proportion of the hydrogen released from the second hydrogen storage material is made available to a hydrogen consumption system (3).

2. A system according to claim 1, wherein the second hydrogen storage material (2) is activated by oxidising a proportion of the hydrogen released from the first hydrogen storage material (1) in a hydrogen burner unit (4).

3. A system according to claim 1 or claim 2, wherein a proportion of the hydrogen released from the first hydrogen storage material (1) is made available to the hydrogen consumption system (3).

4. A system according to any preceding claim, wherein a proportion of the hydrogen released from the second hydrogen storage material (2) is used to recharge the first hydrogen storage material (1).

5. A system according to any preceding claim, wherein the first hydrogen storage material (1) can be activated to release hydrogen at a temperature of less than 100 °C.

6. A system according to any preceding claim, wherein the second hydrogen storage material (2) can be activated to release hydrogen at a temperature of from 250 °C to 350 °C.

7. A system according to any preceding claim further comprising one or more heat exchangers (5) to remove heat from the hydrogen released from the first (1) or second (2) hydrogen storage materials.

8. A system according to any preceding claim, wherein the first hydrogen storage material (1) comprises an AB_5, AB_2 or an AB type material.

9. A system according to claim 8, wherein the first hydrogen storage material (1) is $LaNi_5$, Al doped $LaNi_5$, $CeNi_5$, Al doped $CeNi_5$, $CaNi_5$, Mn doped $CaNi_5$, TiVMn, Zr doped TiCrMn, Zr doped $TiCr_2$, Co doped TiV_2, Fe/Ti, Ti/Zr, Ti(MnV) and Ti(MnCr), or any combination thereof.

10. A system according to any preceding claim, wherein the second hydrogen storage material (2) comprises Mg.

11. A system according to claim 10, wherein the second hydrogen storage material (2) comprises PGM.

12. A system according to claim 10 or 11, wherein the second hydrogen storage material (2) is MgH_2 or Mg H_2/Ni, or any combination thereof.

13. A system according to any preceding claim, wherein the hydrogen consumption system (3) comprises a fuel cell.

14. A system according to any of claims 1 to 12, wherein the hydrogen consumption system (3) comprises an internal combustion engine.

15. A vehicle, the vehicle comprising a system according to claim 13 or claim 14 as a power source.

16. A method of activating a second hydrogen storage material (2) for supplying a hydrogen consumption system (3), which method comprising utilising at least a proportion of a stream of hydrogen generated by activating a separate first hydrogen storage material (1).